167608

SECOND FIVE-YEAR REVIEW REPORT

ACME SOLVENTS RECLAIMING INC. SITE

WINNEBAGO COUNTY
ILLINOIS

September 2002

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Region 5
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List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations
ESD	Explanation of Significant Difference
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PPB	Parts per Billion
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
VOC	Volatile Organic Compound
IEPA	Illinois Environmental Protection Agency

FIVE-YEAR REVIEW REPORT
EXECUTIVE SUMMARY
September 2002

ACME SOLVENTS RECLAIMING INC. SITE

Winnebago County
Illinois

The completion of the current five-year review confirms that the ACME Solvents Reclaiming Inc. Site remains protective of human health and the environment. The remedies selected in the1985 ACME Solvents (the Site) Record of Decision (ROD) have been implemented under the 1986 Consent Order entered with the Potentially Responsible Parties (PRPs) for the site. This is the second five-year review for the Site. The first five-year review was completed and signed in September 1997.

The remedies for the ACME Solvents site in Winnebago County, Illinois included excavating, consolidating, thermally destroying, backfilling with clean soil, grading, providing an alternate water supply, thermal desorption, ground water extraction / soil vapor extraction, landfill capping and establishing vegetation. The site achieved construction completion with the signing of the Preliminary Close Out Report in July 1998.

The assessment of this five-year review found that the remedy was constructed in accordance with the requirements of the ROD. An Explanation of Significant Difference (ESDs) were issued January 1998, incorporating the use of actual site conditions to recalculate cleanup standards for the contaminants of concern at the site.

The remedy is functioning as designed. The immediate threats have been addressed and the remedy remains protective of human health and the environmental in the short term. There are no current exposure pathways. The contaminated soil removals and ground water / soil vapor extraction systems to eliminate the source of contamination has and is achieving the remedial objectives to minimize migration of contaminants to ground water and prevent direct contact with, or ingestion of, contaminants.

Long-term protectiveness of the ground water will continue to be verified by data. Operation and maintenance of the ground water system has been effective. The Site ground water remedy remains protective of human health and the environment. The ground water pump and treatment system has been in place and operating since September 1996.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: ACME Solvents Reclaiming Inc.

EPA ID *(from WasteLAN)*: ILD053219259

Region: 5	**State:** IL	**City/County:** Morristown / Winnebago County

SITE STATUS

NPL status: ☒ Final ☐ Deleted ☐ Other (specify)

Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☐ Complete

Multiple Ous?* ☒ YES ☐ NO	**Construction completion date:** 7 / 13 / 1998

Has site been put into reuse? ☐ YES ☒ NO

REVIEW STATUS

Lead agency: ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency

Author name: David Linnear

Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA, Region 5

Review period:** 7 / 22 / 2002 to 9 /30 / 2002

Date(s) of site inspection: 6 / 26 / 2002

Type of review:

☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only
☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead
☐ Regional Discretion)

Review number: ☐ 1 (first) ☒ 2 (second) ☐ 3 (third) ☐ Other (specify)

Triggering action:

☐ Actual RA On-site Construction at OU #___ ☐ Actual RA Start at OU# NA
☐ Construction Completion ☒ Previous Five-Year Review Report
☐ Other (specify)

Triggering action date *(from WasteLAN)*: 9 / 30 / 1997

Due date *(five years after triggering action date)*: 9 / 29 / 2002

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

1) Need for continued evaluation of groundwater treatment processes.

2) Need for continued evaluation of soil vapor extraction (SVE) process.

3) Need to continue monitoring plume movement and increasing Volatile Organic Compounds (VOCs).

4) Need for continual operation, maintenance and optimization of groundwater pump and treat system.

Recommendations and Follow-up Actions:

1) Continue monitoring for exceedances and maintain operating treatment equipment.

2) Continue to monitor plume movement to ensure protectiveness.

3) Evaluate VOC after relocating SVE system.

4) Continue operating groundwater treatment and SVE systems until cleanup goals have been met. Continue to identify and implement opportunities to optimize operation of the groundwater treatment and SVE systems.

Protectiveness Statement(s):

The remedy is protective of human health and the environment in the short term. There are no current exposure pathways and the remedy appears to be functioning as designed. Continued elimination of the source of contamination is achieving the remedial objectives to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminants in soils and sediments.

Long-term Protectiveness:

The remaining component of the cleanup is groundwater treatment and SVE systems. Operation and maintenance of the systems has, on the whole, been effective. The PRPs and EPA are and will continue to evaluate opportunities for system optimization. There is some concern that a portion of the plume had elevated VOCs. VOCs were detected in the vicinity of the mass extraction wells.

Long-term protectiveness of the groundwater treatment and SVE portion of the remedial action will be verified by obtaining additional data/information on the well-field capture zone, delineation of groundwater contamination and implementing appropriate modifications to the well field. The groundwater treatment and SVE portion of the remedy are expected to continue to be protective of human health and the environment.

Other Comments:

None.

U. S. Environmental Protection Agency
Region 5
Five Year Review
ACME Solvents Reclaiming Inc. Site
Winnebago County, Illinois
September 2002

I. Introduction

The United States Environmental Protection Agency (U.S. EPA) Region 5 has conducted a second five-year review of the remedial actions implemented at the ACME Solvents Reclaiming Inc. Site in Winnebago County, Illinois. The review was conducted between May 2002 and September 2002. This report documents the results of the five-year review. The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, finding, and conclusions of the review are documented in the five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and make recommendations to address them.

This review is required by statute. U. S. EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA 121(c), as amended, which states:

> If a remedial action is selected that results in any hazardous substances, pollutants, or contaminants remaining at the site, the remedial action shall be reviewed no less often than every five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP part 300.430(f)(4)(ii)of the Code of Federal Regulations (CFR) states:

> If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review for the ACME Solvents Reclaiming Inc. Site. The first five-year review report was completed and signed in September 1997. Due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure, this five-year review is required.

II. Site Chronology

Table 1 lists a chronology of events for the ACME Solvents Reclaiming Inc. Site.

Event	Date
Initial discovery of Problem	1981
Listed of National Priority List	1983
Remedial Investigation/Feasibility	1984
ROD Signature	1985
Explanation of Significant Difference	1998
Preliminary Site Close Out Report	1998
First Five-Year Review	1997
Site Visit / Inspection	2002
Second Five-Year Review	2002

III. Background

Physical Characteristics

Acme Solvent Reclaiming, Inc. site is located at 8400 Lindenwood Road, approximately five miles south of Rockford, Winnebago County, in northern Illinois. The site consists of approximately 20 acres of rolling uplands in a predominately rural area.

Land and Resource Use

Land around the site is used for agriculture, quarrying, and low density, single family residences. The site is bound by an active quarry to the north and farmland to the south and east. Immediately to the west is another Superfund site, Pagel's Pit Landfill.

History of Contamination

From 1960 to 1973, the Acme Solvent site served as a disposal site for paints, oils and still bottoms from the Acme Solvent Reclaiming, Inc. solvent reclamation plant in Rockford, Illinois. Wastes were dumped into depressions created from previous quarrying operations or by scraping overburden from the near surface bedrock to form berms. Empty drums were stored at the site.

In September 1972, the Illinois Pollution Control Board (IPCB) ordered the operator to remove all drums and wastes from the site and to backfill the lagoons after the removal. Follow-up inspections subsequent to this Order revealed that the wastes and crushed drums were being left on site and covered with soils.

Releases from the facility were first documented in 1981 when down-gradient residents complained of poor smelling drinking water from private water supply wells. Sampling and analysis of well water showed chlorinated organic compounds at concentrations exceeding the U.S. EPA's Health Advisories for drinking water. The Illinois Environmental Protection Agency (IEPA) recommended that these wells not be used, and in 1981 the owner of Pagel's Pit Landfill, another Superfund site to the northwest, agreed to voluntarily supply affected residents with bottled water.

Initial Response

The Acme Solvent site was proposed to the National Priorities List (NPL) in 1982 and was included on the final NPL in September 1983. IEPA completed an RI/FS in 1984, and on September 27, 1985, U.S. EPA signed a Record of Decision (ROD) to excavate an estimated 26,000 cubic yards (cy) of contaminated soils and sludges and treat them by on-site incineration. The ROD also called for provision of home carbon treatment units (HCTUs) to residents affected by site contamination and for further study of the groundwater and bedrock.

U.S. EPA attempted to negotiate an agreement to implement the ROD with approximately 65 Potentially Responsible Parties (PRPs), including the site owner/operators and several generators. U.S. EPA and the PRPs were not able to reach an agreement. Instead, a consortium of 23 PRPs chose to disregard U.S. EPA's ROD and to excavate and transport sludges and soils to permitted hazardous waste landfills.

The PRP action was terminated in November 1986 when U.S. EPA's Land Disposal Restrictions (LDS), which prohibited land disposal of solvent- and dioxin-contaminated waste without treatment, went into effect. The PRPs removed approximately 40,000 tons of soil and sludge from the site, or an estimate 90 percent of the total. After completion of the action, an approximately 4,000 ton waste pile and two tanks containing contaminated liquids and sludges remained at the site. Since then, an additional waste area containing approximately 2,000 tons of soils and sludges has been discovered.

In December 1986, 23 PRPs entered into a Consent Order with U.S. EPA and IEPA to further study the remaining soils, bedrock, and groundwater contamination and to provide HCTU's and monitoring to affected residents. Under this Consent Order, Harding Lawson Associates (HLA), a consultant for the PRPs completed a Supplemental Technical Investigation (STI) in May 1990, and Endangerment Assessment (EA) in June 1990, and a Remedial Action Alternative Evaluation (RAAE) in September 1990. HLA completed an Engineering Evaluation/Cost Analysis (EE/CA) in August 1990 to evaluate alternatives to address the remaining waste areas and the two tanks.

The STI identified two remaining waste disposal areas on-site. The first waste area consists of approximately 4,000 tons of soil and sludges. A second approximately 200 by 40 foot was area was also identified. Sampling in these areas showed Volatile Organic Chemicals (VOCs) and Poly-chlorinated Biphenols (PCBs) exceeding background. Two 8,000-gallon storage tanks

containing liquids and sludges were also present at the site. In addition to the contaminated soils and the tanks, contamination, VOCs and Semi-Volatile Organic Chemicals (SVOCs), were found in the groundwater as well.

Basis for Taking Action

Results from previous investigations, activities and sampling show that groundwater, soil and subsurface bedrock on and around the ACME Solvent site have been contaminated. This contamination presents a threat and risk to human health and the environment.

IV. Remedial Actions

Remedial Selection

In December 1986, PRPs entered into a Consent Order to further study the remaining media and contamination and provide home carbon treatment units (HCTU's) and monitoring to affected residents. The PRPs completed a Supplemental Technical Investigation (STI), Endangerment Assessment (EA), Engineering Evaluation / Cost Analysis (EE/CA) and Remedial Action Alternative Evaluation (RAAE) in 1990.

A second ROD was signed December 1990 selecting the following remedy:
1. Fencing the site and providing, to the extent possible, deed and access restrictions and deed notices or advisories for locations with contaminated groundwater;
2. Incineration of liquids and sludges in two tanks remaining on the site and disposal of the tanks;
3. Provision of a permanent alternate water supply to locations with contaminated wells;
4. Excavation of soils and sludges in two waste areas and treatment by thermal desorption, low-temperature thermal stripping;
5. Further treatment of residuals, if necessary, by solidification/stabilization and on-site or off-site disposal;
6. Extraction and treatment of VOC-contaminated soils and, if possible, bedrock by soils/bedrock vapor extraction;
7. Consolidation of soils with remaining SVOCs, PCBs and lead contamination and covering these soils and areas where residuals are landfilled on-site with a RCRA Subtitle C compliant cap; and
8. Long term groundwater monitoring.

This remedy is the second of three potential operable units at the ACME Site. The first operable unit ROD, signed in 1985, called for excavation and incineration of soil, sludge, and other waste materials buried at the site. Instead, approximately 90 percent of the materials were excavated and disposed of in a hazardous wasted landfill without the consent of US EPA or IEPA and approximately 10 percent remained on-site. This unauthorized clean-up by the PRPs resulted in a change in the Superfund law to prevent such unauthorized actions at any future NPL site. Home carbon treatment units (HCTUs) were provided to resident affected by site contamination and additional studies were performed at the site under that ROD.

The second operable unit remedial action, being implemented by the responsible parties, with oversight by US EPA, provides for treatment of the principal threat posed by contaminants in waste areas, soils, bedrock, and groundwater. One of the methods of treatment is a Soil Vapor Extraction (SVE) system which was installed July 1995. Remaining risks at the site are being reduced by a landfill cap comprised of 12 inches of clean soil cover. The cap provides an engineering control for the remaining risk. Contaminated groundwater is to be collected, extracted and treated by an on-site facility which was completed September 1996. The groundwater is extracted, treated and discharged to an on-site stream to meet the appropriate discharge limitation as set by IEPA. The treated groundwater effluent is monitored quarterly.

A potential third operable unit was identified related to the Pagel's Pit Landfill. Additional studies were performed to determine the source of the contamination in this operable unit and a separate ROD was developed for the groundwater contamination under Pagel's Pit Site.

The ROD specifies RCRA, 40 Code of Federal Regulations (CFR) Part 264, as applicable to this site. While planning the low-temperature stripping site work, it became apparent that requiring dual lining and leachate collection system for the short-term staging of treated soil was excessive. Since the ROD was written, there have been additions to the applicable regulations that allow for more flexibility in corrective actions and Superfund cleanups by providing for the designation of Corrective Action for Solid Wasted Management Unit (CAMU) for the purposes of implementing a site cleanup. Movement and/or consolidation of remediation wastes within a CAMU will not be subject to Land Disposal Regulations (LDRs) or other hazardous waste land disposal unit requirements. In addition, a contingency plan for soil handling was added to ensure that the construction completion schedule is met.

An Explanation of Significant Differences (ESD) was signed January 1998 documenting the delisting of waste, recalculation of clean up standards and revisions to the RCRA compliant cap. The last phases of construction required by the ROD were completed in February 1998.

Remedial Implementation

Fencing and Deed Restrictions

The objective of the institutional control element of the response action was to place sufficient deed and access restrictions to ensure that: 1) the integrity of the RCRA cap or soil cover is not compromised; 2) no construction particularly of drinking water wells occurs onsite which may increase the likelihood of exposure to remaining contaminants; and 3) there is no interference with operation and maintenance of the treatment and monitoring systems. To achieve these objectives a security fence was installed around the perimeter of the site to meet institutional control requirements in the ROD. The fence is standard chain link construction topped with barbed wire, and is 5,500 feet in length. Gates are located at various points along the fence length to permit access to off-site elements of the remedy such as ground water extraction wells. A pivoting cross-member arrangement with vertical tines is installed at three stream crossings on the site to

prevent access along stream channels while allowing debris collected in the channel unimpeded travel during high stream flow events. The Remedial Action Report (RAR) for the fence installation project, documenting completion of this remedial action, was approved on June 25, 1993. In addition, deed and access restrictions were filed with the Winnebago County Recorder of Deeds in Rockford, Illinois on April 10, 1990. The fence is being maintained in good repair and is checked periodically in accordance with the approved maintenance schedule.

Tank Removal and Disposal

The objective of the Tank Removal and Disposal element of the response action is to remove source waste materials at the site in order to limit further contribution to soils and groundwater. Two steel storage tanks were used at the Site for the storage of waste residues. The material remaining in the tanks at the time the RD/RA project commenced was removed from the tanks, solidified with a stabilizing agent and transported off-site for disposal by incineration. The tops of the tanks were cut off with a non-thermal shear to access the material contained within. The material was then extracted from the tanks using a backhoe and placed in 30 cubic yard roll-off containers with HDPE liners. Kiln dust was used as a solidifying agent for the tank material in order to meet RCRA moisture criteria for landfilling. The solidified waste was then transported off-site and incinerated at a TSCA permitted facility. The empty tanks were cleaned, crushed with heavy equipment, and transported off-site for landfill disposal at the Chemical Waste Management Adams Center facility in Ft. Wayne Indiana. The RAR for the tank contents removal and disposal project, documenting completion of this remedial action was approved on June 25, 1993.

Alternate Water Supply

The objective of the Alternate Water Supply element of the response action is to provide a permanent source of potable water to those locations where the domestic water supply well has been impacted. Five residences and one commercial location situated west of the site along Lindenwood Road met eligibility criteria for connection to the permanent alternate water supply system. Service is also provided to the treatment plant. The alternate water supply system is comprised of an existing deep well supply source, a pneumatic tank to maintain constant pressure in the system, a six inch service main 4,400 feet in length, and 2-inch service connections from the water main to residences served by the system. Water is supplied to the residences at pressures in the range of 60-75 psi. Water meters were installed in all service connections to monitor the water usage at each location. The RAR for the Alternate Water Supply system, documenting completion of this remedial action, was approved on December 30, 1994.

The water supply system is adequately maintained. There have been no complaints from users. A summary of water usage for the past six months for affected locations surrounding the site is shown below. Due to an electrical outage in April 2002, the meters were reset to zero and therefore no readings were available for that month. The residences at 8554 and 8900 Lindenwood Road are vacant as of May 2002.

ALTERNATE WATER SUPPLY
Usage in Gallons per Month

ADDRESS	8011	8514	8554	8800	8812	8900	8929	TOTAL
Jan-02	2887	400	9240	8107	7640	10099	18455	56818
Feb-02	2205	400	9173	5888	5469	10022	16982	50139
Mar-02	3360	400	11280	7007	5865	11841	20691	60444
Apr-02	0	500	0	0	0	0	0	500
May-02	7510	1000	1	4595	7154	20	2217	22497
Jun-02	5480	287	0	7535	5985	0	3512	22799
TOTAL	21432	2987	29694	33312	32113	31982	61857	213377
AVERAGE	4286	498	9898	6662	6423	10661	12371	42675

Thermal Desorption and Solidification/Stabilization

The objective of the thermal desorption, Low Temperature Thermal Stripping (LTTS), component of the response action is on-site treatment of affected soils to remove concentrations of VOCs, SVOCs, and PCBs and eliminate potential contribution of these constituents to groundwater. The LTTS process involved mobilization of thermal treatment equipment to the Site, erection of material handling and soil treatment equipment, and demobilization following completion of the project. Affected soils were excavated from designated waste areas and thermally treated using infrared heating technology. Target compounds released from the soil medium upon heating, were captured in an air handling system connected to the heating chamber. Upon removal from the heating chamber the off-gas was cooled and the target compounds contained in the condensate were captured in liquid separation equipment for off-site incineration. The treated soils resulting from the LTTS process were stockpiled and tested for compliance with cleanup goals. Approximately 6,900 tons of organic- and metals-contaminated soil and sludge were processed. In addition, approximately 2,500 tons of this material was stabilized to entrain leachable lead. The LTTS removal rate was consistent with the approved design. The RAR for the LTTS remedy component, documenting completion of this remedial action, was approved on June 30, 1995.

Soil Vapor Extraction System

The objective of the Soil Vapor Extraction (SVE) system is treatment of affected soils in designated waste areas to remove concentrations of VOCs, thereby eliminating the potential contribution of these constituents to groundwater. The SVE system installed at the Site consists of air injection wells installed perpendicular to the ground surface, an underground network of perforated piping installed six feet below ground surface (bgs), a vacuum pump, and moisture separator. The vacuum pump creates a negative pressure in the underground piping network and VOCs in the soil are drawn into the piping network and exhausted to the atmosphere. Ambient

air is introduced into the affected soil column through air wells positioned above the underground piping network to maintain air flow through the soil at a rate which maximizes the vacuum source operation. The air emissions from the SVE system are monitored for compliance with health-based risk thresholds developed for off-site receptors. The RAR for the SVE system, documenting completion of construction of the SVE, was approved on September 3, 1996. A summary of emissions since the date of the last 5 Year Review for COCs from SVE appears below:

SOIL VAPOR EXTRACTION SYSTEM
EMMISSIONS DATA SUMMARY
FOR CONTAMINANTS OF CONCERN IN SOIL

Compound **(ppbv)**	7/97	10/97	2/98	4/98	6/98	5/99	3/00	5/01
1,1,1 Trichloroethane	110	82	75	50	130	74	160	85
1,1 Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichloroethane	ND	3.5	ND	ND	ND	ND	ND	ND
1,2 Dichloroethylene	40	26	42	19	38	160	450	270
Benzene	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	260	180	220	120	290	160	280	200
Trichloroethylene	1700	990	1000	900	1700	830	1500	980
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	ND	ND	ND	ND	ND	ND	ND	ND

The SVE system was completed in July 1995 and began full-scale operations in January 1996 following a six-month shake down period. By late 1997, conditions in the SVE area had improved such that the VOCs in the SVE area had reached levels at or below clean-up criteria. The Remediation Confirmation Plan (RCP) was submitted to US EPA for review and comment. In April 1998, US EPA approved the RCP for the SVE system. Pursuant to the RCP, the system was placed in a pulse-pumping mode in May 1998 in order to evaluate whether recoverable VOC concentrations re-accumulated in the soil pore spaces while the SVE was not operating. Results of the SVE sampling events during the pulse-pumping were presented to US EPA in October 1998 and clearly showed there was no appreciable increase in VOC concentrations in the SVE system exhaust during the pulse-pumping. A sample of the SVE exhaust was taken during the 2nd quarter of 1999 during the regular O&M monitoring event. Following US EPA's review of the Sampling Plan Results, continuous operation of the SVE system was suspended on June 30, 1999. The sample taken in the 2nd quarter of 1999 represented in the first of three annual samples of the SVE exhaust that would be taken to verify that the SVE area remained in compliance with the clean-up criteria. The SVE system was turned on and samples were taken from the exhaust in the 1st quarters of 2000 and 2001. The data shows that the area still meets or exceeds the clean-up criteria for VOCs at the ACME Site. Pursuant to the RCP, all operations of the SVE system ceased following the 2001 sampling event.

Bedrock Vapor Extraction

The ROD contains provisions for the performance of a Bedrock Vapor Extraction (BVE) pilot test to evaluate the feasibility of implementing a full-scale BVE system at the Site. The intent of the ROD in requiring consideration of a BVE system was to limit the contribution of volatile organic compounds (VOCs) that may exist in bedrock to the nearest aquifer. Following implementation of source removal and remediation activities, bedrock vapor testing demonstrated that concentrations of VOCs in the bedrock met the cleanup standards established. The BVE pilot testing program and implementation was subsequently eliminated from further consideration as documented in correspondence issued by the U.S. EPA on December 23, 1996.

Ground Water Extraction and Treatment System

The purpose of the Ground Water Extraction and Treatment System (System) response action is to restore the quality of groundwater in the surficial aquifer. The system approved in the design consisted of sixteen (16) extraction wells (EXW). Due to conditions encountered in the field during construction, two extraction wells were abandoned (EXW15 and EXW16). After construction, three wells could not be developed (EXW-11, EXW-13 and EXW-14) and were also eliminated (see Figure 3) . The system currently consists of eleven (11) wells and a groundwater treatment facility capable of treating 80 gpm. Five of the extraction wells are mass removal wells (EXW-1 through EXW-5) located within or immediately down-gradient of waste disposal source areas at the site. The remaining extraction wells (EXW-6 through EXW-10 and 12) are located further down-gradient of the site source areas. Performance of the system in meeting groundwater goals is monitored quarterly and a performance evaluation is prepared on a semi-annual basis.

The system contains equipment and controls to effect removal of target compounds contained in the ground water. The primary compounds targeted for removal by the system consists of VOCs and SVOCs. The natural chemistry of the ground water within the aquifer to be restored required that certain secondary compounds be targeted for treatment, to allow the unit processes for primary target compounds to operate effectively. The secondary target parameters included mineral content and biological activity. Ground water processed in the treatment facility is discharged to the intermittent stream which traverses the Site. The quality of the discharge is compared to limits provided by IEPA and is sampled quarterly to ascertain the status of the discharge relative to surface water quality standards. Solids generated from the fixed film reactor and the inclined plate separator are transferred to a solids accumulation vessel and subsequently dewatered in a plate and frame filter press. The dewatered solid waste products are transported off-site for disposal by landfill. The RAR for the GWET system, documenting completion of the remedy, was approved on September 3, 1996.

The system has been up and running for about six years. Data regarding performance has been collected. One semi-annual report has been generated which interprets the data collected. In general, the extraction wells are capturing the plume attributed to the ACME Site in accordance

with the approved design. Upon review of the analytical data, fluctuating concentrations for the contaminants of concern is evident. An analysis of the data, however, has determined no apparent upward trend in the level of contaminant. This is consistent with the source control work, i.e., low temperature thermal stripping, performed at the site. Over 15 million gallons of groundwater has gone through the treatment plant since start up. There are no significant operational problems with plant operation or system maintenance. The plant is consistently meeting discharge limits.

In response to the submittal of the required performance review, the U.S. EPA has made suggestions to the RD/RA Group to better document system performance. These will be incorporated in the future monitoring.

RCRA Cap

The functional intent of the RCRA Compliant Cap is to eliminate direct contact and intercept direct precipitation and divert it from contact with underlying soils. The design for the cap was approved on June 30, 1997. Construction was completed February 1998. The ROD provides an option for the RD/RA Group to petition to exempt the LTTS treated soils from RCRA regulation. An ESD was signed January 1998 documenting the delisting of waste, recalculation of clean up standards and revision to the RCRA compliant cap.

System Operations / Operations and Maintenance (O&M)

The ACME Site Remedy is operated both manually and remotely by on-site personnel. All components are linked to the Water Treatment Plant (WTP) operations center monitoring and operation are conducted by computer control. Site activities performed to achieve compliance with the remedy are detailed on a semi-annual basis and submitted to US EPA Region 5.

V. Progress Since the Last Five-Year Review

This is the second five-year review for the ACME Solvents Reclaiming Inc. Site. The first five-year review was completed and signed in September1997. Recommendations during the 1997 five-year review involved the completion of construction and continued operation and maintenance of systems at the Site. During the past five years, the groundwater treatment system and SVE has operated on a consistent basis. Additionally, groundwater monitoring has occurred consistently. There were no significant deficiencies or compliance issues found during the 1997 five-year review.

VI. Five Year Review Process

The ACME Solvents Reclaiming Inc. Site five year review was prepared by David Linnear, U.S. EPA Remedial Project Manager in consultation with representative of the PRPs. The five year review consisted of a Site inspection and review of relevant documents, including O & M records. The final report will be available in the Site information repository for public view.

Community involvement and relations ongoing at the Site include responding to local resident concerns over the progress of the operation and maintenance of the remedy and conducting visits to affected community members when issues and / or concerns arise. A local plant manager is available to provide residents with a Site tour when appropriate. Public notice are scheduled to inform the community of significant events and progress at the Site.

Notification will be made to the public of this Five Year Review findings allowing further comments and informing them where to locate a copy of this report if necessary.

VII. Five Year Review Findings

A. Site Inspections

Inspections at the site were conducted in June 2002 and August 2002 by the EPA. The purpose of the inspections was to assess the protectiveness of the remedy, evaluate the performance of the groundwater and SVE system and verify institutional controls. No significant issues were identified during the various inspections at any time regarding the cap, groundwater and SVE systems nor issues related to institutional controls. The institutional controls that are in place were implemented and no activities were observed that would have violated the institutional controls.

B. Risk Information Review

Review of the Site RAs demonstrates the remedy remains protective of public health and the environment. Purpose of the reviews is two-fold: (1) to confirm that the remedy as spelled out in the ROD and/or remedial design remains effective at protecting human health and the environment (e.g., the remedy is operating and functioning as designed, institutional controls are in place and are protective), and (2) to evaluate whether original clean-up levels remain protective of human health and the environment. ARARs and To Be Considered (TBCs) are key elements in fulfilling these two purposes. Following standards were identified as applicable or relevant and appropriate requirements (ARARs) in the ROD for the Site and were reviewed for changes that could affect protectiveness:

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND AREAS OF NON-COMPLIANCE.

The remedial action has met all identified applicable, or relevant and appropriate, federal and more stringent state requirements. ARARs for the selected remedies are listed below.

Chemical Specific

- SDWA National Primary Drinking Water Standards (40 CFR 141)
- Clean Air Act (CAA) National Ambient Air Quality Standards (NAAQS, 40 CFR 50)

- CAA National Emission Standards for Hazardous Air Pollutants (NESHAPs, 40 CFR 61)
- Illinois General Use Water Quality Standards, and Public and Food Processing Water Supply Standards (35 IAC 302)
- Illinois General Effluent Standards (35 IAC 304)

Action Specific

- CWA NPDES Standards (40 CFR 125)
- RCRA Definition and Identification of Hazardous Waste (40 CFR 261)
- RCRA Standards for Generators of Hazardous Waste (40 CFR 262)
- RCRA Standards for Transport of Hazardous Waste (40 CFR 263)
- RCRA Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities (40 CFR 264)
- RCRA Land Disposal Restrictions (LDS, 40 CFR 268) (LDR requirements will be met through a Treatability Variance.)
- Occupational Safety and Health Act (OSHA) Regulations for Workers Involved in Hazardous Waste Operations (29 CFR 1910)
- Illinois Regulations for Prohibition of Air Pollution (35 IAC 201)
- Illinois Regulations for Emissions of Fugitive and Particulate Matter Emissions (35 IAC 212)
- Illinois Organic Air Emission Standards (35 IAC 215)
- Illinois NPDES Permit Regulations (35 IAC 309)

Location Specific

- None identified

To Be Considered Criteria

- TSCA PCB Spill Cleanup Policy (40 CFR 761)
- SDWA Maximum Contaminant Level Goals (40 CFR 141.50)

C. Data Review

Data shows that the Alternate Water Supply (AWS) system meets water supply delivery objectives contained in approved AWS final design and that overall water usage is consistent with residential averages for similar water supply systems. Ground water monitoring has been performed at the Site to determine the trend of groundwater contaminants at the Site. Groundwater sampling continues and provided the following information. Data acquired from the groundwater monitoring network to date indicates that slight increases in the concentrations of VOCs in the vicinity of the mass extraction wells coincides with wetter periods when infiltration is expected. This trend suggest that VOC residuals may be contained in or near the soil-bedrock interface and are contributing to groundwater during periods of infiltration. It is believed that

these residual VOCs may be located in a relatively small area underlying or proximate to the source removal component of the remedy. Results show that the quality of groundwater in the vicinity of the downgradient extraction wells is at or near the groundwater cleanup standard.

Data shows that site monitoring of the SVE system resulted in improved groundwater quality immediately downgradient of the SVE treatment area. Results remain below site cleanup standards.

VIII. Technical Assessment

The following questions address the issue of protection of human health and the environment by the remedy at the ACME Solvents Reclaiming Inc. Site.

Question A: Is the remedy functioning as intended by the decision document?

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended by the ROD and as modified by the ESDs. The remedy has achieved the remedial objectives to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminants in soil.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

Changes in Standards and To Be Considered: Neither federal MCLs nor State ground water standards for Site related contaminants have changed since the ROD and the last five-year review in 1997. All other regulations at the Site remain unchanged.

Changes in Exposure Pathways: There have been no new exposure pathways discovered at the Site.

Changes Toxicity and Other Contaminant Characteristics: There have been no changes to toxicity and other factors for contaminants of concern.

Changes in Risk Assessment Methodologies: There have been no additions or changes in risk assessment methodologies used at the Site since the RCD have occurred which affect the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other events have affected the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed, the site inspection, and interviews with the PRP consultants, the remedy is functioning as intended by the ROD and as modified by the ESD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. All ARARs for soil and ground water contamination cited in the ROD have been met.

IX. Issues

The PRPs will need to continue evaluating groundwater treatment and soil vapor extraction (SVE) processes. They also need to continue monitoring plume movement and increasing Volatile Organic Compounds (VOCs) and for continual operation, maintenance and optimization of groundwater pump and treat system.

X. Recommendations and Follow-Up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone	Current / Future Protectiveness? (Y/N)
Continue evaluation of ground water treatment and soil vapor extraction (SVE) processes	Continue to monitor for exceedances; Maintain ground water and SVE treatment systems	PRPs	State/EPA	Spring 2003	Y / Y

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone	Current / Future Protectiveness? (Y/N)
Continue monitoring plume movement and increasing Volatile Organic Compounds (VOCs)	Continue to monitor for exceedances; Maintain ground water and SVE treatment systems	PRPs	State/EPA	Spring 2003	N / Y
Continue O&M and optimize ground water system.	Continue to monitor effectiveness of systems	PRPs	State/EPA	Spring 2003	N / Y

XI. Protectiveness Statement

The remedy is protective of human health and the environment. The exposure pathways that could result in unacceptable risks are being controlled and institutional controls are preventing exposure to, or the ingestion of, contaminated ground water or soil. All threats at the site have been addressed through capping, treatment systems, fencing and implementation of institutional controls. Current data indicate that the plume remains on site and the remedy is functioning as required.

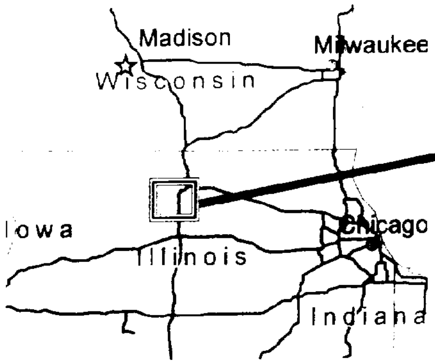
XII. Next Review

The next five-year review for the ACME Solvents Reclaiming Inc. Site is required by September 2007.

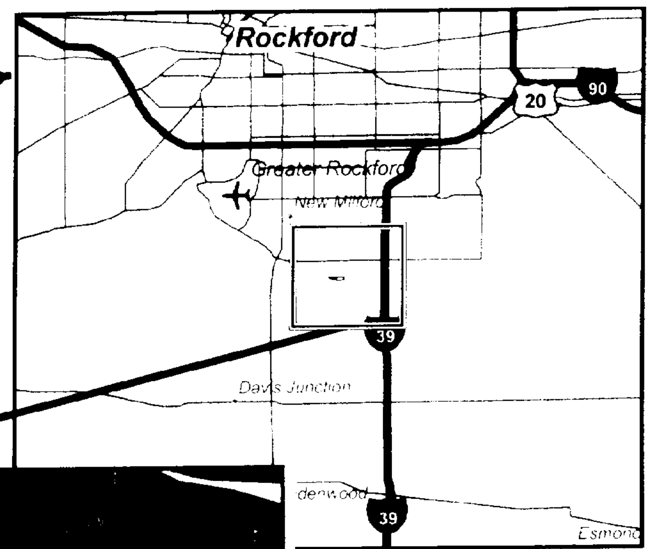
FIGURES

Acme Solvent Superfund Site
Winnebago County, Illinois

1) State



2) City of Rockford



3) Acme Solvent Superfund Site

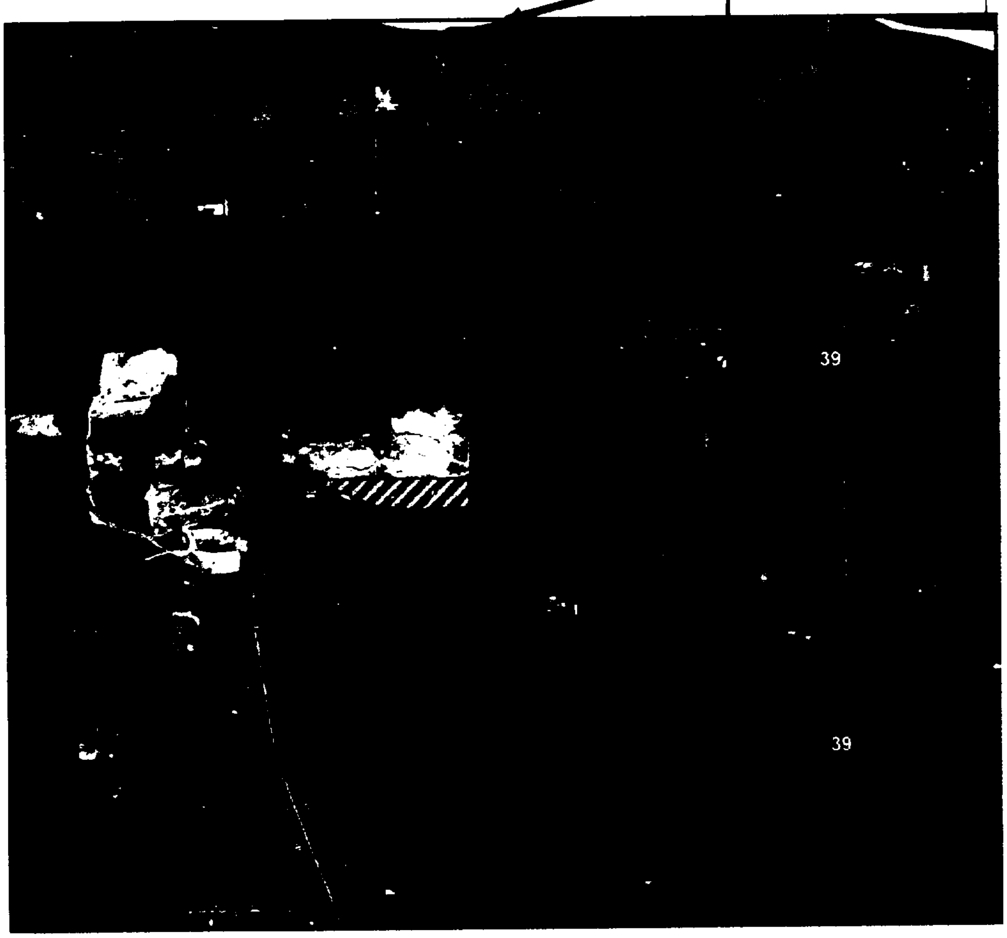
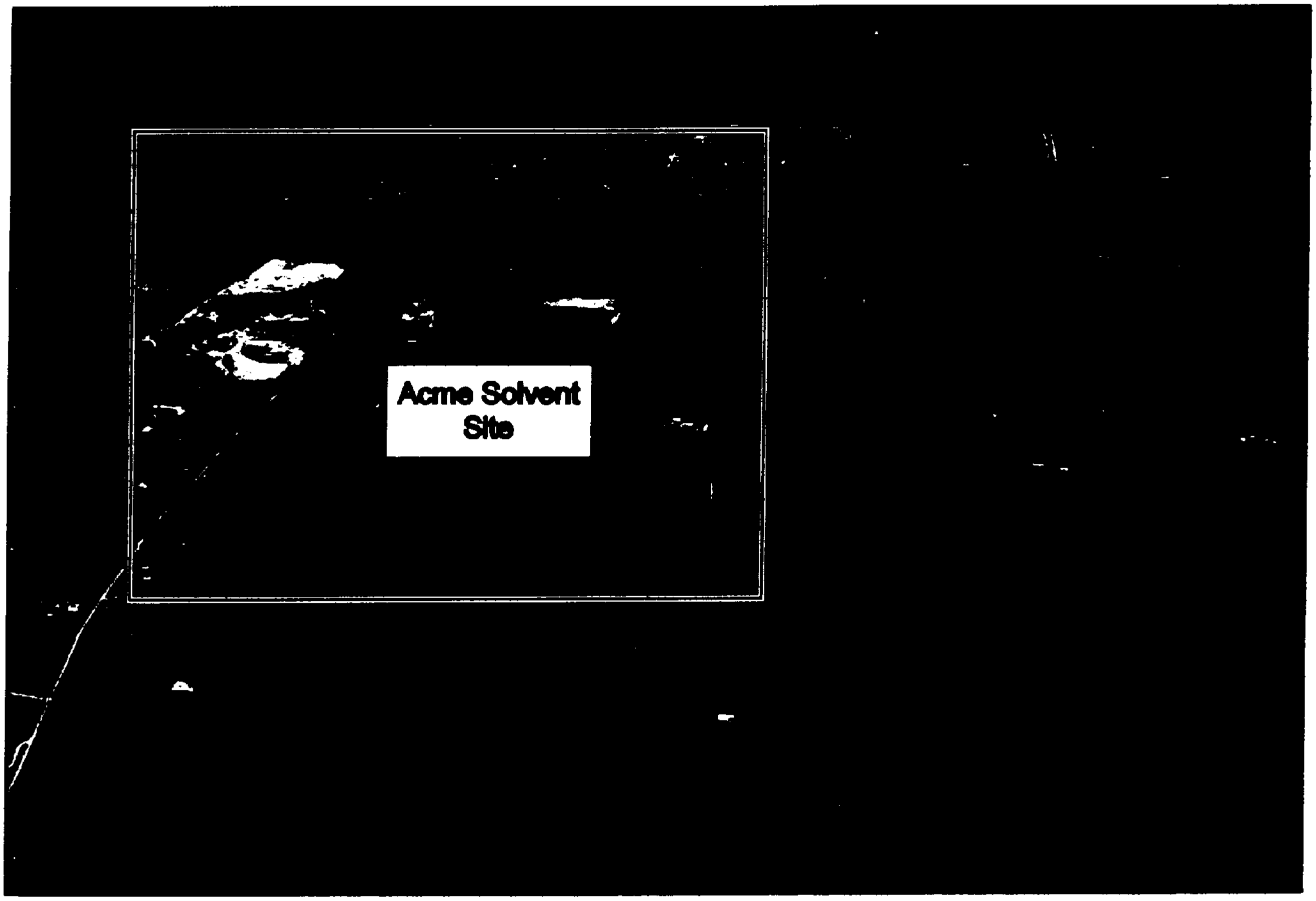


Figure 1

Acme Solvent Superfund Site
3D Surface Terrain Model

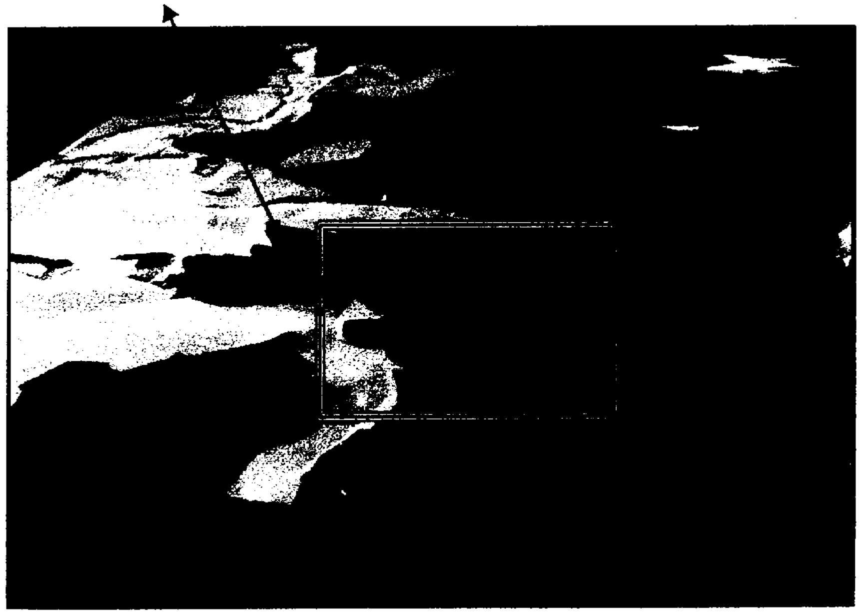


Legend

Elevation

	867 - 891
	844 - 867
	820 - 844
	797 - 820
	773 - 797
	750 - 773
	726 - 750
	703 - 726
	680 - 703

N



Plot created by David Wilson U.S. EPA Region 5 on [illegible]

Figure 2

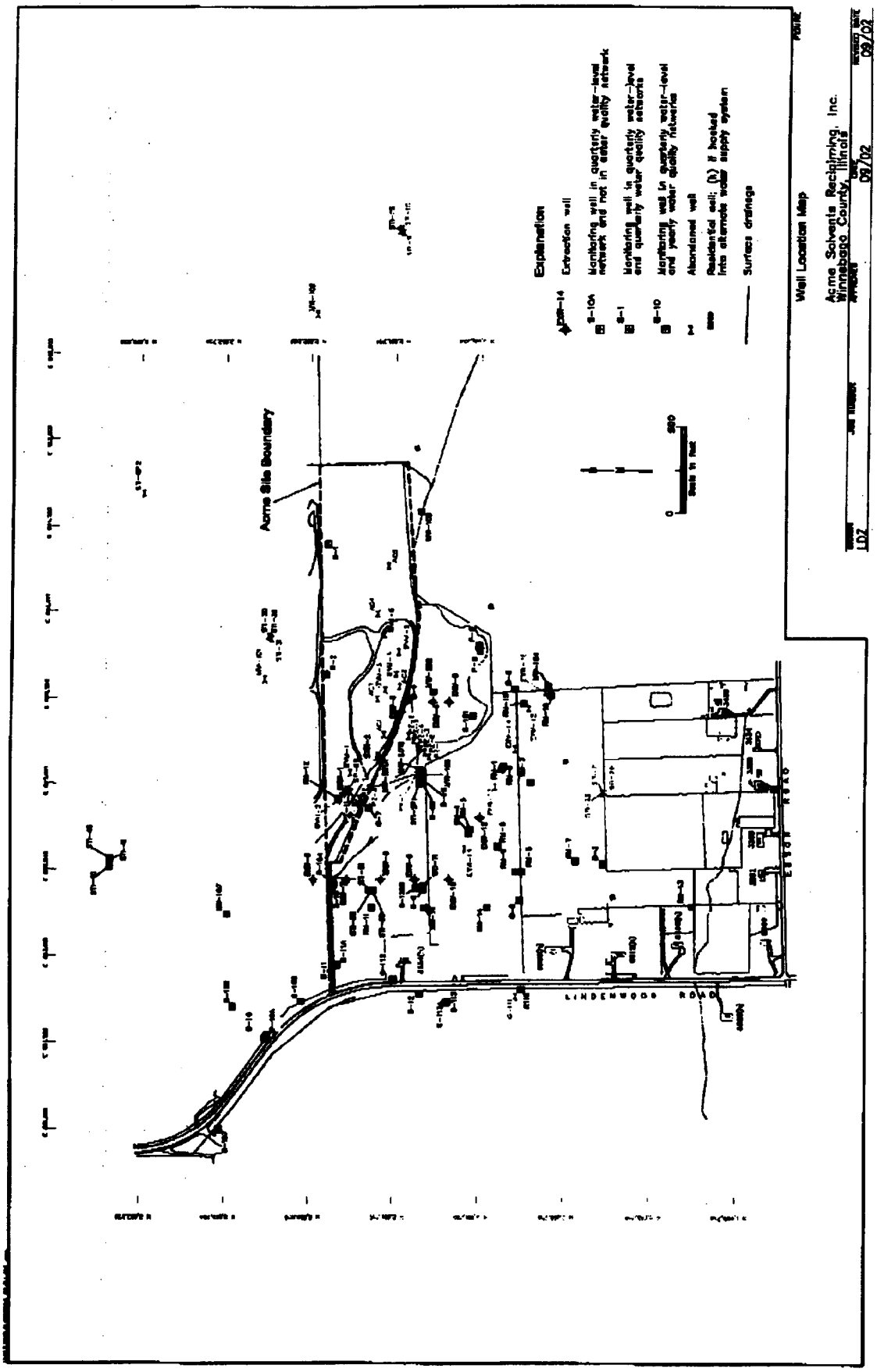

Well Location Map
Acme Solvents Reclaiming, Inc.
Winnebago County, Illinois
Explanation
Extraction well
Monitoring well in quarterly water-level network and not in water quality network
Monitoring well in quarterly water-level and quarterly water quality networks
Monitoring well in quarterly water-level and yearly water quality networks
Abandoned well
Residential well: (h) If hooked into alternate water supply system
Surface drainage
Acme Site Boundary
LINDENWOOD ROAD
Scale in Feet
09/02
09/02

FIGURE 3